

CLAIMS

1. A composition comprising an antigen recognized by a CD4⁺CD25⁺ regulatory T cell.
2. The composition according to claim 1, wherein the antigen recognized by the CD4⁺CD25⁺ regulatory T cell comprises a molecule identified by an SEREX method.
3. A composition comprising an expression vector that encodes an antigen recognized by a CD4⁺CD25⁺ regulatory T cell.
4. The composition according to claim 3, wherein the antigen recognized by the CD4⁺CD25⁺ regulatory T cell comprises a molecule identified by the SEREX method.
5. The composition according to claim 2 or claim 4, wherein the molecule identified by the SEREX method comprises an autoantigen.
6. The composition according to any one of claims 2, 4, and 5, wherein the molecule identified by the SEREX method comprises one selected from the group consisting of DnaJ-like2 (GenBank Accession No.:NM_005494, XM_028966, XM_172161, XM_052862, XM_062754, XM_093388, NM_016306, NM_012328, and NM_005880), Galectin-8 (GenBank Accession No.:AH008815, AF193806, and AF193805),

poly(A)-binding protein (GenBank Accession No.:XM_067844), and Ligase-1 (GenBank Accession No.:NM_000234).

7. The composition according to any one of claims 3 to 6, wherein a gene gun is used for administration of the composition.

8. The composition according to any one of claims 1 to 7, wherein the composition is provided for preventing and/or treating autoimmune diseases.

9. The composition according to any one of claims 1 to 8, wherein the composition is provided for preventing and/or treating allergic diseases.

10. The composition according to any one of claims 1 to 9, wherein the composition is intended for suppressing a rejection reaction and/or a graft-versus-host reaction in an organ or tissue transplantation.

11. A method of immunosuppressing a mammal, comprising administering the composition according to any one of claims 1 to 10 to the mammal.

12. A method of immunosuppressing a mammal, comprising the steps

of administering the composition according to any one of claims 1 to 10 to the mammal to suppress an immune response; and further administering Interferon- γ to recover the immune response from the mammal.

13. A method of immunosuppressing a mammal, comprising the steps of administering the composition according to any one of claims 1 to 10 to the mammal to suppress an immune response; and further administering Interleukin 12 and Interleukin 18 to recover the immune response from the mammal.

14. A method of preventing and/or treating an autoimmune disease, comprising administering the composition according to claim 1 to a mammal in a pharmaceutically effective dosage.

15. Use of the composition according to any one of claims 1 to 10 for manufacturing a preventive agent and/or a therapeutic agent for an autoimmune disease.

16. A method of preventing and/or treating an allergic disease, comprising administering the composition according to claim 1 to a mammal in a pharmaceutically effective dosage.

17. A use of the composition according to any one of claims 1 to

10, wherein the composition is used in production of a preventive agent and/or a therapeutic agent for an allergic disease.

18. A method of suppressing a rejection reaction and/or a graft-versus-host reaction in an organ or tissue transplantation, comprising administering the composition according to claim 1 to a mammal in a pharmaceutically effective dosage.

19. Use of the composition according to any one of claims 1 to 10 for manufacturing a preventive agent and/or a therapeutic agent for suppressing a rejection reaction and/or a graft-versus-host reaction in an organ or tissue transplantation.